

CPR Training for Teenagers



Group E

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16/03/2018



Cardiopulmonary Resuscitation (CPR) and use of Automated External Defibrillator (AED) in a Virtual Reality Environment

Target Users: Elementary school children **Context:** Classroom **Aid:** Normal
Teacher

Theoretical Framework: ERC guidelines stress the importance of following **ALL STEPS** in the **RIGHT ORDER**.

Goal: Train the children in **CPR & Stress Management**

Dummy: Pressure Sensors

Eye-tracking

Voice Recognition

Gloves: Heart rate sensors

Hypothetical Scenarios

→ Adapted to the location (Edinburgh city)

→ Increasingly more complex/Stressful

Virtual Agent: 1st Aid Responder → Instructions during initial stages

Comments during performance of task

& Personalised Feedback for Student and Teacher



The Program

- Informative Video
- Presentation of steps + Drilling
- Practice in VR using dummy



LIFESAVER GET MY CERTIFICATE PROFILE LOG IN

MEDICAL QUESTIONS

GENERAL QUESTIONS | CPR QUESTIONS | CHOKING QUESTIONS

Throughout this page the masculine is used to denote the masculine or feminine.

GENERAL QUESTIONS

WHAT DOES THE RESUSCITATION COUNCIL (UK) DO?

- teaches people how to do cardiopulmonary resuscitation (CPR)
- encourages research into resuscitation techniques
- studies resuscitation teaching techniques
- establishes guidelines for resuscitation procedures
- establishes and maintain standards for resuscitation
- fosters good working relations between all organisations involved in resuscitation in order to produce and publish training aids and other literature concerned with the organisation of resuscitation and its teaching.

www.resus.org.uk/about-us/

WHY DO THE RESUSCITATION COUNCIL (UK) GUIDELINES CHANGE? WHEN WILL THEY CHANGE AGAIN?

International resuscitation guidelines are reviewed and updated every 5 years. The Resuscitation Council (UK) actively contributes to this international review process. Changes are only made when new evidence points towards a better treatment, or there is evidence that we should not be following an aspect of the current guidelines. The next guidelines update is due in late 2020.

MENU 41 Q

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SOMEONE HAS COLLAPSED

STEP 1: ARE THEY UNRESPONSIVE?
If unresponsive, shout for help.

STEP 2: OPEN THE VICTIM'S AIRWAY - ARE THEY BREATHING NORMALLY?
If not breathing normally, dial 999.

STEP 3: START CHEST COMPRESSIONS

STEP 4: GIVE 2 RESCUE BREATHS AFTER EVERY 30 CHEST COMPRESSIONS
Give continuous chest compressions if unwilling or unable to do rescue breaths.

MENU MEDICAL QUESTIONS **EMERGENCY HELP** **HOW TO CHANGE** **PROFILES** **FAQS** **ABOUT REUSCITATION** **CONTACT** **LEGAL** **USERS** **1/1**

WHAT DO YOU DO?

- ▶ TRY TO GET A RESPONSE
- ▶ KEEP HIM WARM

03:43

FILM 2: REBECCA

VERY GOOD

★ ★ ★ ★ ★

CORRECT ANSWERS 21/27 VERY GOOD

SPEED OF ANSWERS 0.51s EXCELLENT

▶ START NOW

FILM 3: PETER

INCOMPLETE

★ ★ ★ ★ ★

CORRECT ANSWERS 14/19 VERY GOOD

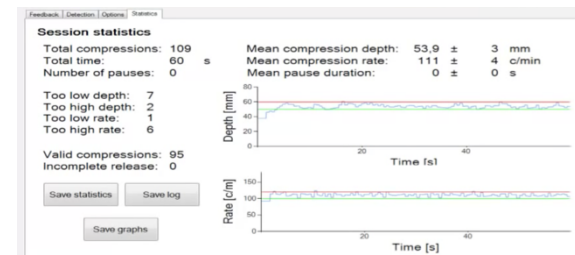
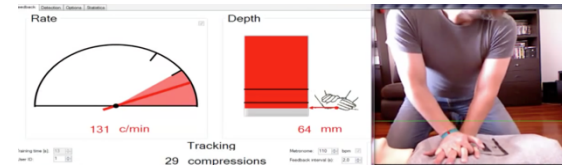
SPEED OF ANSWERS 0.38s EXCELLENT

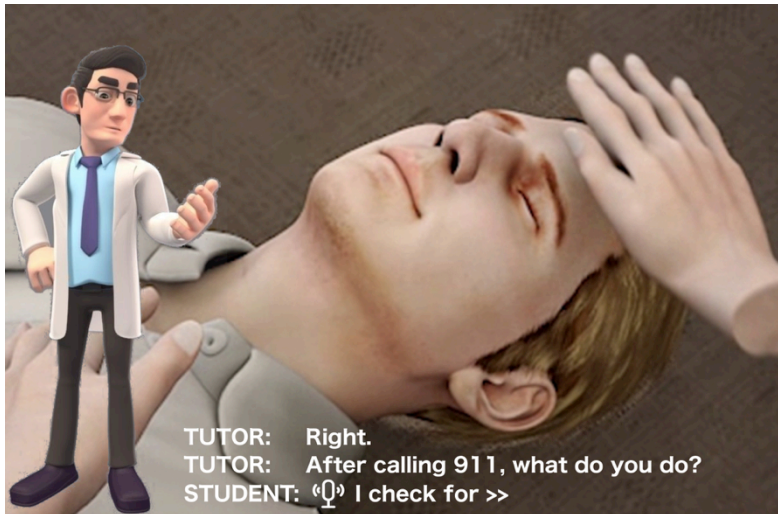
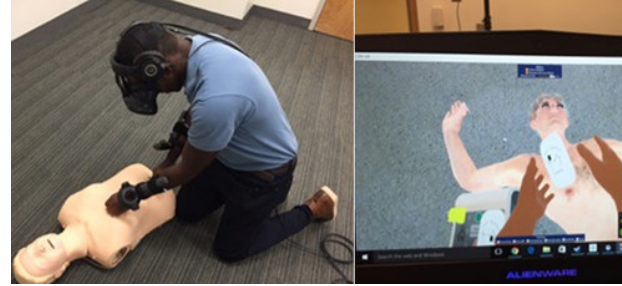
▶ START NOW

<http://www.life-saver.org.uk/>



VREM (<https://www.indiegogo.com/projects/mini-vrem>)
Semeraro et al., 2013





TUTOR: Right.
 TUTOR: After calling 911, what do you do?
 STUDENT: "Q" I check for >>

Cognitive Tutor (Anderson et al., 1987; Alevan and Koedinger, 2002)

- CPR training ~ strict steps
- Production rules for procedural + declarative
- Focus on each action rather than presenting facts
→ minimise cognitive load
- Immediate feedback

Autotutor (Graesser et al., 2004)

- Dialogue with tutorial agent
 - Early stages: talk through situation
 - Based on student model: feedback, hints, prompts, assertions, summaries...etc
- Adapt scaffold size to progress



Street Management

Tools: Gloves with Heart Rate Sensors to measure children's pulse to tell their stress levels

Purposes: test whether the children are suitable enough for CPR

Normal heart rate (bpm): 70 to 110 (from 7 to 9 years) ; 60 to 100 (over 10 years)

Practice two things:

- the skills of CPR
- better psychological quality



References

<https://cprguidelines.eu/>

<https://www.indiegogo.com/projects/mini-vrem>

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Thank you!